

IN THE DRAWINGS:

In Fig. 2 please insert the caption "Prior Art" as show in the attached drawing.

REMARKS

This amendment is responsive to the Office Action mailed December 29, 2008, which action stated rejection of claims 1-27, inclusive. By Preliminary Amendment mailed August 10, 2006, claims 4, 14 and 25-26 had previously been canceled.

By this paper, claims 9-10, 12 and 27 are canceled. Claims 1-3, 5-8, 11, 13 and 15-24 remain pending in this prosecution and new claim 28 is added for reasons set out below. No new matter has been introduced.

Amendments to the Specification

The amendment to the specification at p. 5, lines 21-34, completes the description of a labeled item 14 of figure 1.

The amendment to the specification at p.6, lines 19-29, completes the description of labeled component 8 of figure 1.

The amendment to the specification at p.9, lines 3-13, completes the description of labeled component 3 of figure 2.

These changes do not introduce new matter and simply provide a textual reference for the respective figure labels.

Amendments to the Figures

Applicant expects that the Examiner will concur that figure 2 should bear the caption "Prior Art".

New Claim

The cancellation of claims 9 and 10 and incorporation of those (horizontal cryostat) limitations into claim 1 necessitates addition of claim 28. The second, surrounding reservoir referenced in claim 1 is specifically not an element of the embodiment of a horizontal axis cryostat as stated at p. 13, line 20. Claim 28 recites the procedure for operating with a sub-lambda point superconducting magnet (contained in a horizontal cryostat) and incorporates previously presented claims, e.g., 1, 8, 9, 10 as specialized to a horizontal axis arrangement without a second reservoir.

Rejections per 35 U.S.C. § 102(b)

Claims 1, 2-3, 5, 13, 15, and 27 stand rejected on Muller, of record.

Method claim 1 is quite distinct from the analysis presented by the Examiner and the method recited therein requires specific attention to the method, as opposed to the Examiner's first analyzing apparatus claim 13 and then asserting that the method is inherent in the apparatus. The method steps recited include use of the valve to stop the flow of helium in distinct contrast to the disclosure of Muller.

Muller, of record, discloses an operational method wherein warm He is *continuously* delivered to the cold He reservoir through a valve 32. Consider Muller at col. 8, lines 21-24:

"The liquid helium that in each case flows back from the upper chamber 1 ensures that the supercooled liquid helium in the first chamber 1 is *at all times* in a non-equilibrium state at atmospheric pressure." (emphasis added)

At col.15, lines 58- 61:

"...helium consumption for the NMR magnet system according to the invention is approximately 50 ml/hour"

At col. 11, lines 16-20:

"Located in the further chamber 102 are approximately 180 liters of liquid helium at atmospheric pressure at a temperature of 4.2 K, which in the cryogenic system depicted is sufficient for approximately 20 weeks of operation."

At a continuous flow rate of 50 milliliters/hour, 180 liters would be exhausted from the chamber in 3600 hours, which is 21 weeks. Consequently, there is no doubt that the Muller reference describes a method wherein the valve 32 is never closed, even while it is employed as a *control* to maintain the desired flow rate. At pages 3-4 of the pending Action, the Examiner references a passage at Muller, col.10, lines 33-36 pointing to a figure showing the valve of the reference apparatus, in the closed position. As demonstrated, above, the valve serves a throttling function for the cited art and is not closed in operation.

In contrast with the Muller method, present claim 1 recites a step of

"stopping the supply of liquid helium to the inner chamber by closing the valve,".

Method claim 1 is therefore not anticipated by Muller. The present work describes a method of cooling the relevant components of the cryostat wherein the expansion of cryogen vapor in the cold reservoir occurs in isolation from the supply reservoir.

Claim 1 is amended, in a technical sense, by addition of a comma at line 11 of the claim, to improve the sense of the surrounding language.

Applicant requests that the Examiner withdraw the specific rejection based on §102 referencing Muller, of record, and directed at method claim 1 and its dependencies.

In regard to the system claim 13, that claim is further amended consistent with the disclosure of figure 1 and p. 5, lines 28-30 (describing the outer chamber as an "annular reservoir 7 surrounding the reservoir 16" and; at page 6, lines 24-25:

"As acting as a cold radiation shield, the secondary reservoir 7 is used to replenish the reservoir 16 with liquid helium".

The utilization of the reservoir 7 in this manner therefore serves two essential functions with a single structural element. The prior art secondary reservoir sits atop the primary reservoir and does not "surround" it to any an appreciable degree. The present work achieves the double benefit of heat shield *and* reservoir for the inner sub-lambda point helium: geometry does not require a gravity feed for the replenishment of helium to the inner reservoir because the helium flow occurs "from the secondary reservoir 7 to the reservoir 16 by virtue of the higher pressure in the reservoir 7 to the reservoir 16 by virtue of the higher pressure in the reservoir 7," P. 6, lines 25- 29.

Accordingly, the system claim 13 is amended to add the element comprising the outer chamber surrounding the inner chamber and to specify that outer chamber as the source where the liquid helium is derived for supplying the inner chamber. The amending language is fully supported by the specification and figure 1 and may be regarded as incorporating the limitations of claim 11.

Rejections per 35 U.S.C. § 103(a)

Claims 6 -12, depending from method claim 1 and claims 16-24 depending from system claim 13 are appropriate claims and should be allowed for the reasons advanced for allowance of the respective head claims.

Claim 1 is shown to be distinct from cited art without need for interpretation and system claim 13 has been amended to distinguish from the cited art.

Newly added claim 28 is drafted from claim language and elements of claims already pending.

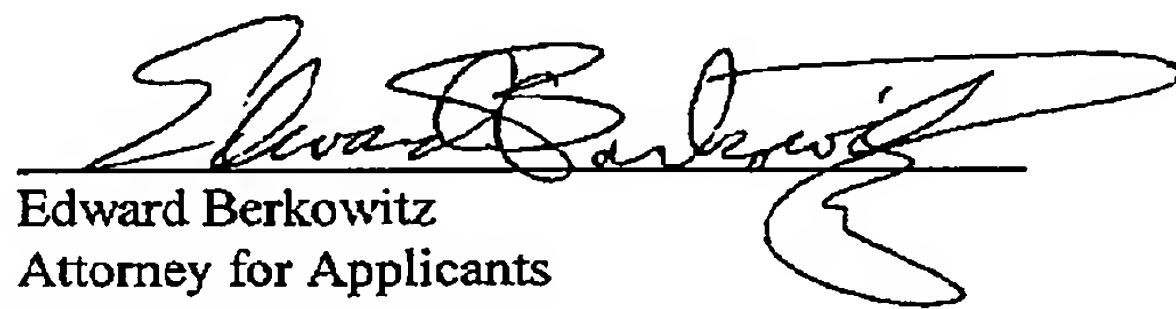
No new matter has been inserted and favorable action is respectfully solicited.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effects is earnestly solicited.

Respectfully submitted,

Dated: 19 March 2009


Edward Berkowitz
Attorney for Applicants
Registration No. 27,771

CUSTOMER NO.: 23-693
Varian, Inc.
Legal Department
3120 Hansen Way, D-102
Palo Alto, CA 94303
(650) 424-5086